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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/087,210	03/04/2002	Shinichi Nishizawa	75120-030-2	6903
25269 7590 11/26/2007 DYKEMA GOSSETT PLLC FRANKLIN SQUARE, THIRD FLOOR WEST 1300 I STREET, NW WASHINGTON, DC 20005			EXAMINER GUILL, RUSSELL L	
			ART UNIT 2123	PAPER NUMBER
			MAIL DATE 11/26/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/087,210

Applicant(s)

NISHIZAWA ET AL.

Examiner

Russ Guill

Art Unit

2123

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 September 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3,4 and 6-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1,3,4 and 6-18 is/are allowed.
- 6) ☒ Claim(s) 19 is/are rejected.
- 7) ☐ Claim(s) 20-22 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 April 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a). Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08) .
Paper No(s)/Mail Date _____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application
- ☐ Other: _____.

DETAILED ACTION

1. This Office Action is in response to an Amendment filed September 24, 2007. Claims 2, 5 and 24 were canceled. Claims 1, 3 - 4 and 6 - 22 are pending. Claims 1, 3 - 4 and 6 - 22 have been examined. Claims 1, 3 - 4 and 6 - 18 are allowable over the prior art of record. Claims 20 - 22 are objected to as depending from a rejected base claim.
2. As recited in the previous Office Action, the Examiner would like to thank the Applicant for the well-presented response, which was useful in the examination process.

Response to Remarks

3. Regarding **claims 15 and 18** objected to for minor informalities:
 - a. Applicant's claim amendments overcome the objections.
4. Regarding **claims 1 - 18 and 24** rejected under 35 USC § 112, first paragraph:
 - a. Applicant's claim amendments overcome the rejections.
5. Regarding **claims 1 - 22 and 24** rejected under 35 USC § 112, second paragraph:
 - a. Applicant's claim amendments overcome the rejections.
6. Regarding **claim 19** rejected under 35 USC § 103:
 - a. Applicant's arguments have been fully considered, and are persuasive. However, a new rejection on art has been issued for independent claim 19 as described below.

b. The Applicant argues:

c. In the Office Action, claim 19 stands rejected under 35 U.S.C. § 103 (a) as being unpatentable over U.S. Patent Nos. 3,770,292 to *Palazzetti* in view of 6,293,530 to *Delorenzis*. Applicant respectfully traverses this rejection for the following reasons.

d. With regard to independent claim 19, Applicant respectfully asserts that *Palazzetti* and *Delorenzis*, whether viewed singly or in combination, do not teach or suggest, or can be combined to disclose an apparatus for simulating a coil spring on a suspension system in terms of derived torque and force characteristics of the spring, the apparatus including, "a six degree of freedom force field generator for simulating the spring, said force field generator secured in the suspension system, and means for activating the force field generator to produce forces therein for characterizing six degree of freedom spring reaction forces," as recited in independent claim 19, as amended.

e. Support for these features recited in claim 19 can be found at least in paragraphs 10-12 and 22-37 of the Published Application, and in Figs. 2-4b of the originally filed drawings. Specifically, as shown in Figs. 2-4b, the present invention provides an apparatus for simulating a coil spring on a suspension system 40 in terms of derived torque and force characteristics of the spring. The apparatus includes a six degree of freedom force field generator 42 for simulating the spring. The force field generator is secured in the suspension system. The apparatus further includes means for activating the force field generator to produce forces therein for characterizing six degree of freedom spring reaction forces.

i. The Examiner respectfully replies:

ii. The Examiner would like to thank the Applicant for showing support in the specification for the amendments because it expedites the examination process.

f. The Applicant argues:

g. The Official Action cites *Palazzetti* and *Delorenzis* as teaching or suggesting the apparatus as recited in independent claim 19.

h. *Palazzetti*, as illustrated in Figs. 1 and 2 thereof, discloses a system for simulating or mimicking a suspension spring force characteristics. Further, *Delorenzis*, as noted in the Official Action appears to disclose a system for spring force characterization.

i. Contrary to the present invention as recited in independent claim 19, the systems of *Palazzetti* and *Delorenzis* however differ from that of the present invention in several key and patentably distinct respects. For example, the systems of *Palazzetti* and *Delorenzis* are axial in nature, in that they do not have the ability to generate/simulate a true coil spring's lateral forces and torques applied to the spring seats. More importantly, the systems of *Palazzetti* and *Delorenzis* are of an entire suspension system, whereas the present invention as recited in claim 19 is directed to a coil spring and the ability to simulate and model the spring itself to better understand a required spring design requirement/specification for already common suspensions. Moreover, whereas the present invention, as indicated above, is directed to a coil spring and deriving spring design specification requirements, the inventions of *Palazzetti* and *Delorenzis* actually substitute a liquid/hydropneumatic spring mechanism for a coil spring in an active suspension and gain no benefit toward a coil spring application in a traditional suspension (non-active).

i. The Examiner respectfully replies:

ii. While the first limitation of the claim recites a force field generator for simulating the spring, the limitation appears to be an intended use, and thus is not given patentable weight. An apparatus is defined by its structure rather than its intended use. The remainder of the argument appears to rely upon features that are not recited in the claim. While the

claims are interpreted in light of the specification, limitations are not imported from the specification.

j. The Applicant argues:

k. Thus contrary to the recitation in independent claim 19 of "a six degree of freedom force field generator for simulating the spring ... characterizing six degree of freedom spring reaction forces," the mechanisms of *Palazzetti* and *Delorenzis* are only single line of action mechanisms and do not have the six degree of freedom reactions that a coil spring has. Therefore, the mechanisms of *Palazzetti* and *Delorenzis* cannot be used for deriving a spring design specification or help with the investigation of various suspension characteristics based on the use of liquid or hydropneumatic springs as taught therein.

l. As pointed out in M.P.E.P. § 2143.03, [t]o establish prima facie obviousness of a claimed invention, all the claimed limitations must be taught or suggested by the prior art". *In re Royka*, 409 F.2d 981, 180 USPQ 580 (CCPA 1974). Since this criterion has not been met, Applicant respectfully asserts that the rejection under 35 U.S.C. § 103 should be withdrawn because *Palazzetti* and *Delorenzis* do not teach or suggest each feature of independent claim 19, as amended.

i. The Examiner respectfully replies:

ii. The references do not appear to teach a six degree of freedom generator. A new rejection of claim 19 is made below.

m. The Applicant argues:

n. In view of the above arguments, Applicant respectfully requests the rejection of independent claim 19 under 35 U.S.C. § 103 be withdrawn. Additionally, claims 20-22, which depend from independent claim 19, are allowable at least because their base claim is allowable, as well as for the additional features recited therein.

i. The Examiner respectfully replies:

- ii. A new rejection of claim 19 is made below.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. **Claim 19** is rejected under 35 U.S.C. 103(a) as being unpatentable over Palazzetti (U.S. Patent Number 3,770,292), in view of Delorenzis (U.S. Patent Number 6,293,530) further in view of Gran (U.S. Patent Number 6,022,005).

- a. The art of Palazzetti is directed to electronic control for vehicle suspension systems, including a hydropneumatic suspension (Abstract).
- b. The art of Delorenzis is directed to a liquid spring system for vibration control in vehicles (Abstract).

- c. The art of Gran is directed toward a semi-active vibration control system (*title and abstract*).
- d. The art of Palazzetti and the art of Delorenzis are analogous art because they are both directed to the art of active suspension for vehicles.
- e. The art of Gran and the art of Palazzetti are analogous art because they both pertain to a suspension system (Gran, figure 4; Palazzetti, title and figure 1).
- f. **Regarding claim 19:**
- g. Palazzetti appears to teach:
 - i. A ~~six degree of freedom~~ force field generator for simulating a spring (figure 1, element 20, and figure 2, and Abstract, last sentence), said force field generator secured in a suspension system (figure 1 and figure 2), and means for activating the force field generator to produce forces therein (figure 1, figure 2, and columns 3 - 6) ~~for characterizing six degree of freedom spring reaction forces.~~
- h. Palazzetti does not specifically teach:
 - i. A six degree of freedom force field generator
 - ii. ~~Means for activating the force field generator to produce forces therein~~ for characterizing six degree of freedom spring reaction forces.
- i. Delorenzis appears to teach:
 - i. a force field generator to produce forces therein for characterizing spring reaction forces (column 13, lines 25 - 31; please note that the limitation appears to be an intended use, and thus does not limit the claim, and is not given patentable weight).

j. Gran appears to teach:

i. A six degree of freedom force field generator (figure 6, six actuators labeled 14, and column 3, lines 60 - 65).

k. The motivation to use the art of Delorenzis with the art of Palazzetti would have been the benefits recited in Delorenzis including the important advantage that vehicle stabilizer bars can be eliminated (column 10, lines 20 - 25).

l. The motivation to use the art of Gran with the art of Palazzetti would have been the benefit recited in Gran that the invention represents a significant improvement in the field of vibration isolation mounting systems (column 8, lines 50 - 55).

m. Therefore, as discussed above, it would have been obvious to the ordinary artisan at the time of invention to use the art of Delorenzis and the art of Gran with the art of Palazzetti to produce the claimed invention.

10. **Examiner's Note:** Examiner has cited particular columns and line numbers in the references applied to the claims above for the convenience of the applicant. Although the specified citations are representative of the teachings of the art and are applied to specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant in preparing responses, to fully consider the references in their entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the Examiner.

Allowable Subject Matter

11. Claims 1, 3 - 4 and 6 - 18 are allowable over the prior art of record.

12. Claims 20 – 22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

13. Following is a statement of reasons for indicating allowable subject matter:

14. While Gran (U.S. Patent Number 6,022,005) teaches a six degree of freedom force field generator, and Palazzetti (U.S. Patent Number 3,770,292) teaches a force field generator for simulating a spring, securing the force field generator to a suspension system, activating the force field generator to produce forces, and Delorenzis (U.S. Patent Number 6,293,530) teaches a force field generator to produce forces for characterizing spring reaction forces, none of these references either alone or in combination with the prior art of record teaches a method for modeling a coil spring on a suspension system in terms of derived torque and force characteristics of a coil spring, specifically including:

- a. Regarding claim 1, “measuring suspension characteristics”, “deriving a coil spring design specification based upon the measured characteristics”, in combination with the remaining features and elements of the claimed invention. It is for these reasons that the Applicant’s invention defines over the prior art of record.

15. While Gran (U.S. Patent Number 6,022,005) teaches assembling a six degree of freedom mechanism having spaced apart moveable platforms and a plurality of actuatable links interconnecting the platforms at corresponding joints on opposite ends of each link, specifying a kinematics relationship between the platforms and the links, actuating the links to generate corresponding applied forces and torques at each joint,

and Palazzetti (U.S. Patent Number 3,770,292) teaches applying a force field mechanism to an automobile suspension, none of these references either alone or in combination with the prior art of record teaches a method for modeling a coil spring in terms of torque and force characteristics to produce a spring design mechanism for an automobile suspension, specifically including:

- a. Regarding claim 4, "measuring the derived forces and torques", "deriving the force and torque characteristics of the coil spring to be designed based upon the kinematics relationship and the corresponding applied forces and torques at each joint", in combination with the remaining features and elements of the claimed invention. It is for these reasons that the Applicant's invention defines over the prior art of record.

Conclusion

16. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

17. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Russ Guill whose telephone number is 571-272-7955.

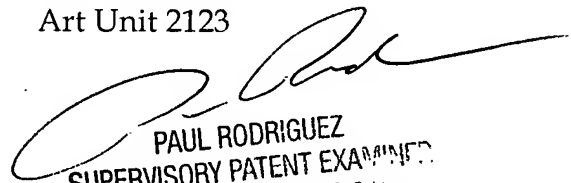
The examiner can normally be reached on Monday - Friday 9:30 AM - 6:00 PM.

19. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Rodriguez can be reached on 571-272-3753. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Any inquiry of a general nature or relating to the status of this application should be directed to the TC2100 Group Receptionist: 571-272-2100.

20. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RG

Russ Guill
Examiner
Art Unit 2123


PAUL RODRIGUEZ
SUPERVISORY PATENT EXAMINER
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